

FIG. 1

#5

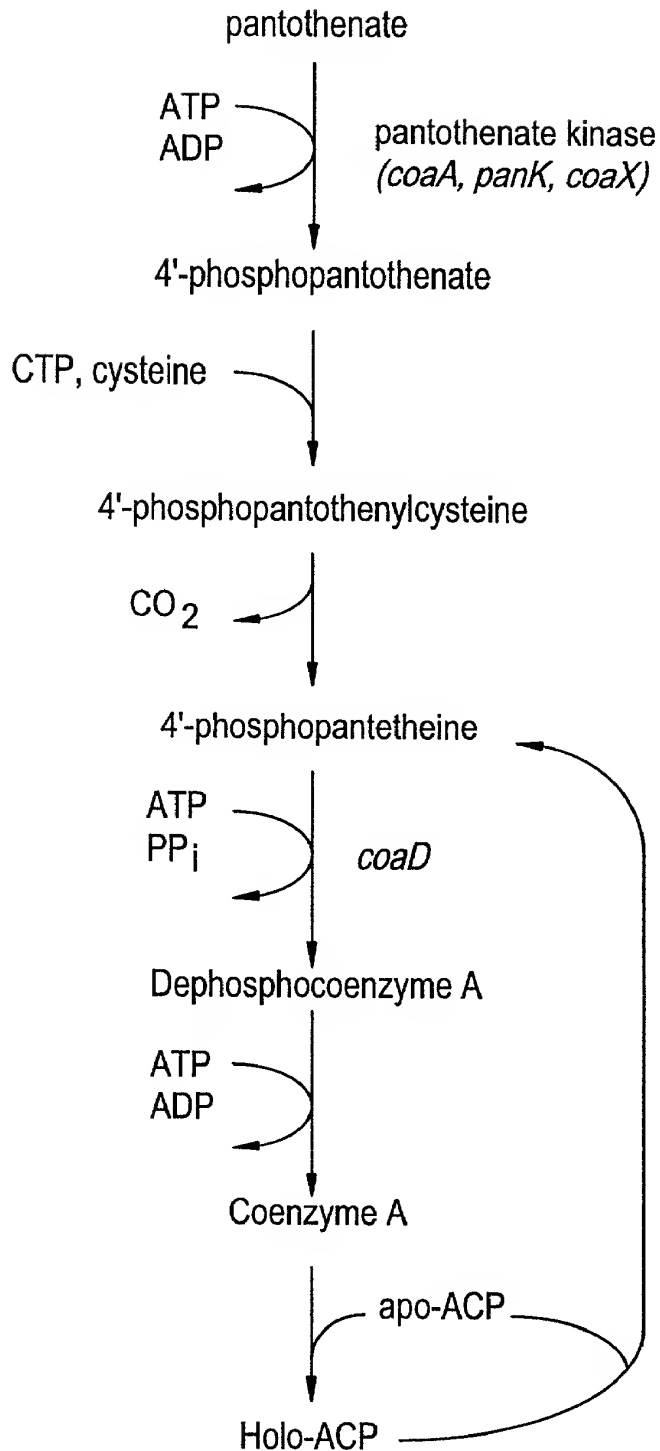


FIG. 2

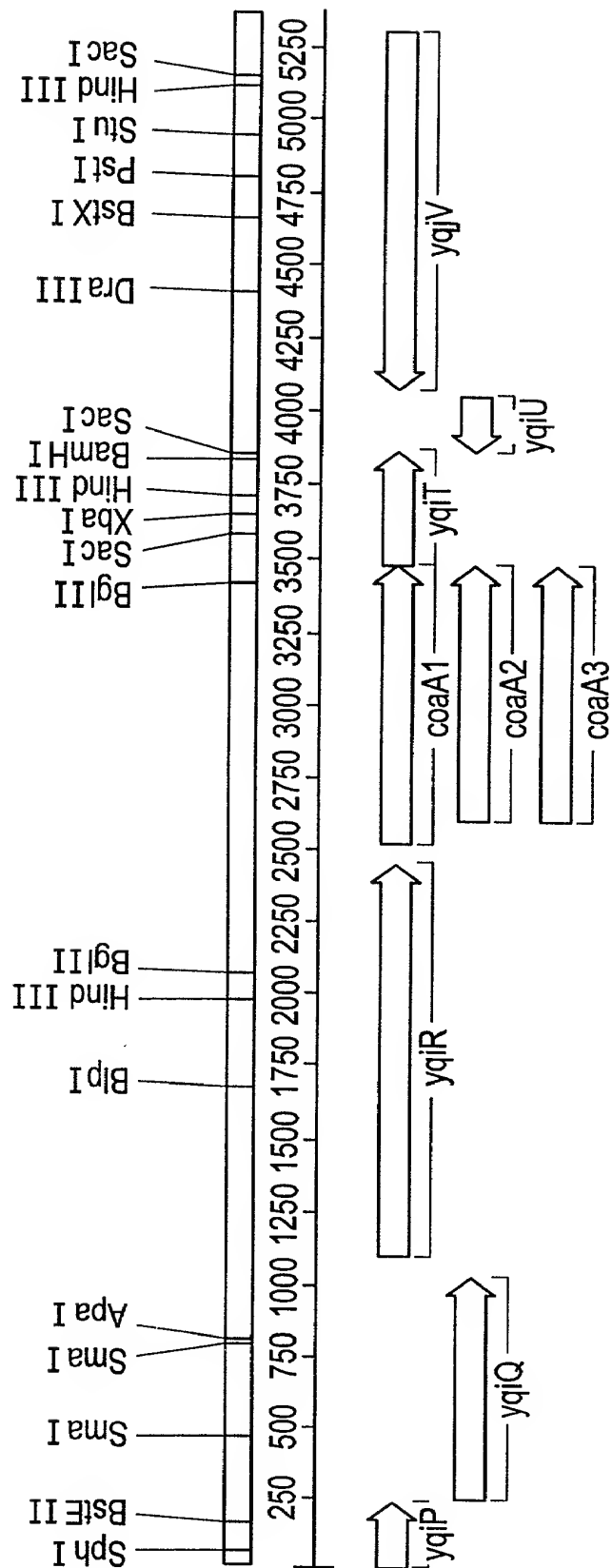


FIG. 3

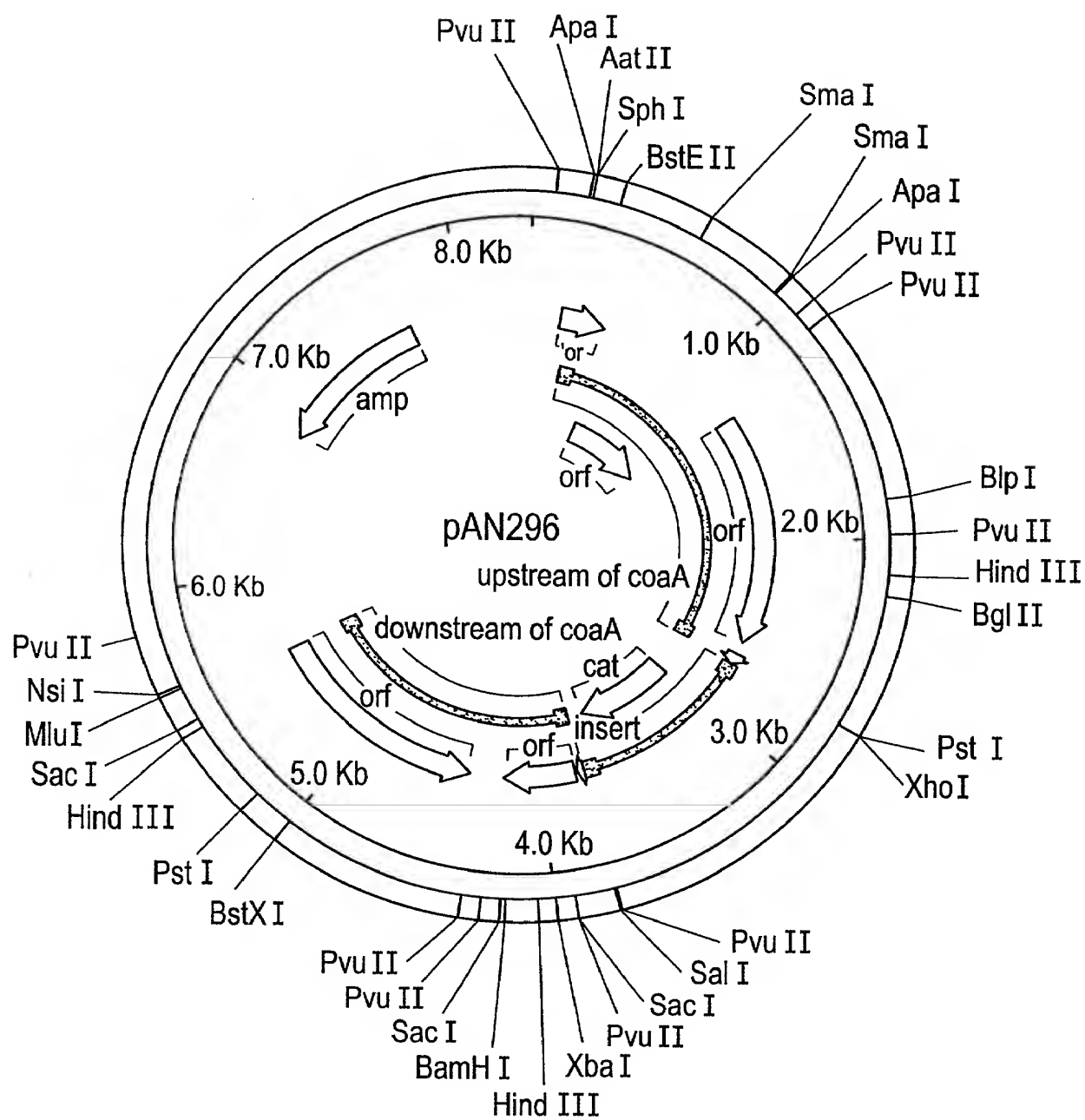


FIG. 4

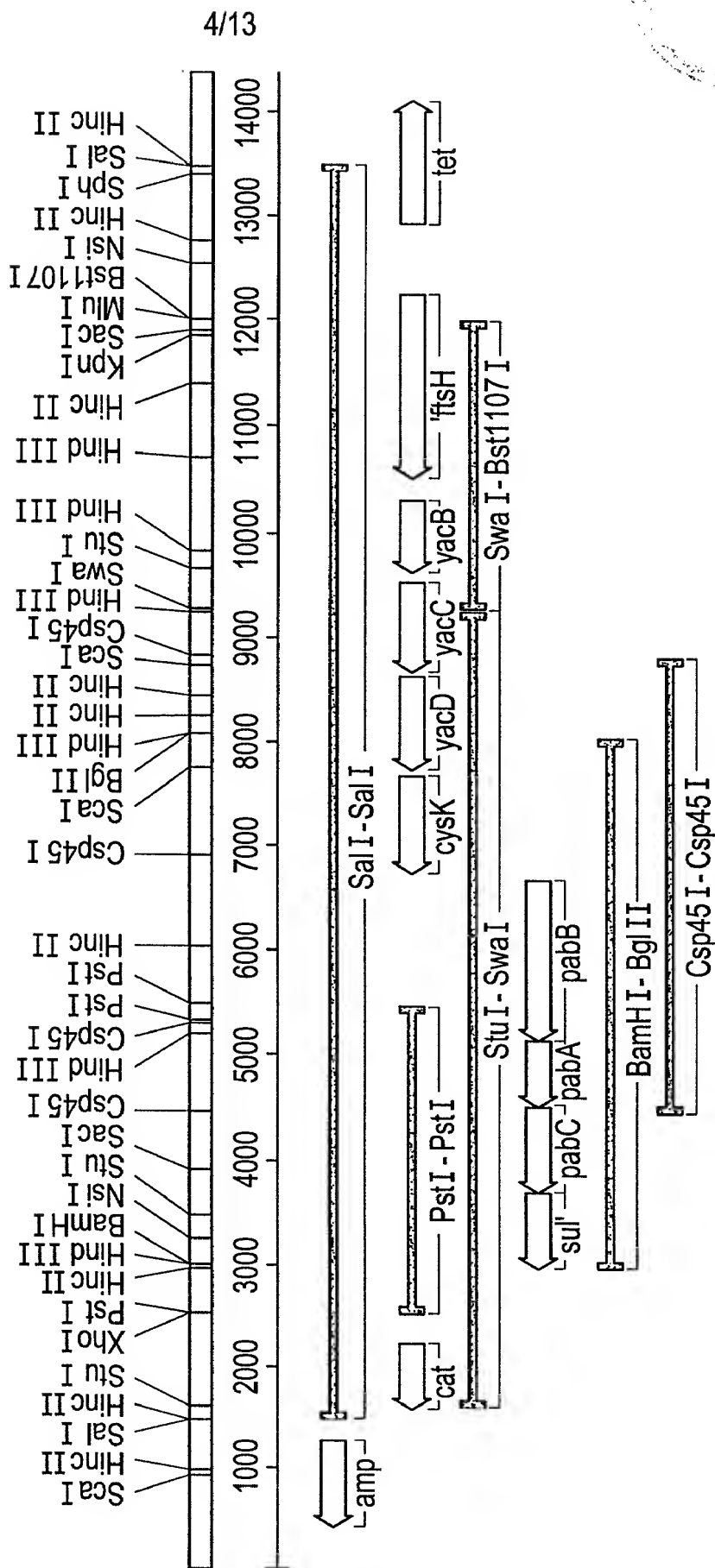


FIG. 5

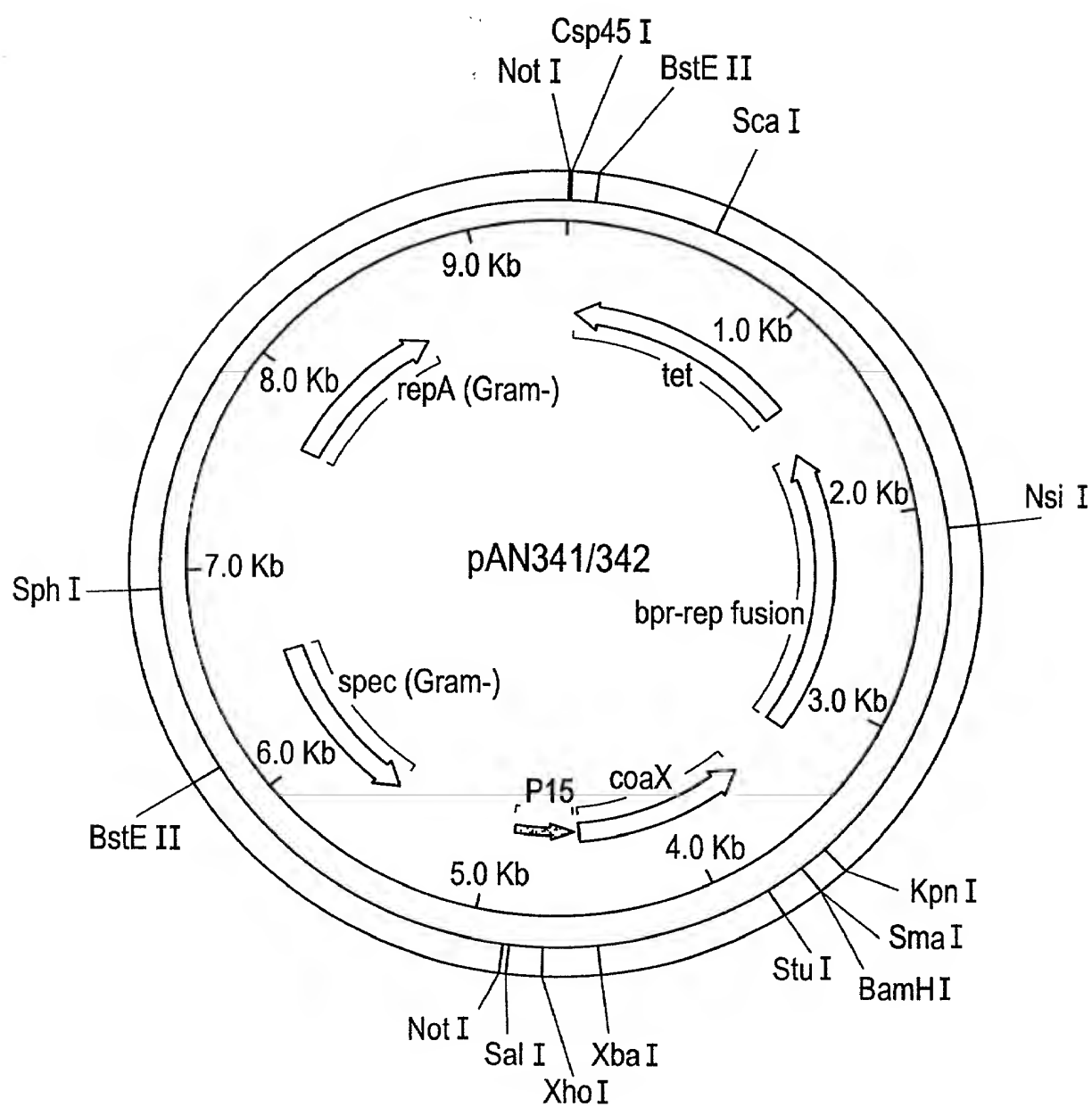


FIG. 6A

CLUSTAL W (1.7) Multiple Sequence Alignments

Sequence type explicitly set to Protein

Sequence format is Pearson

Seq. 1: B.subtilis Coax SEQNO_9	258 aa	Seq. 8: sp O51477 B.burgdorferi	262 aa
Seq. 2: dbj BAA21476.1 D.vulgaris	212 aa	Seq. 9: sp P74045 Synecocystis	257 aa
Seq. 3: gb AAD35964.1 T.maritima	246 aa	Seq. 10: sp O25533 H.pylori	223 aa
Seq. 4: pir T36391 S.coelicolor	265 aa	Seq. 11: sp O67753 A.aeolicus	229 aa
Seq. 5: sp Q45338 B.pertussis	267 aa	Seq. 12: sp Q9RX54 D.radiodurans	262 aa
Seq. 6: sp O06282 M.tuberculosis	272 aa	Seq. 13: WIT RCA03301 C.acetobutylicum	250 aa
Seq. 7: sp O83446 T.pallidum	273 aa	Seq. 14: WIT RRC02473 R.capsulatus	258 aa

B. subtilis Coax SEQIDNO_9	-----MLLVIDVGNTNTVLGVYHDG-----KLEYHWRIE
WIT RCA03301 C.acetobutylicum	NKRAAFMLLLFLRSVLKVLVLDVGNTNIVLGIYNDT----KLTAEWRLS
pir T36391 S.coelicolor	-----MLLTIDVGNTHTVLGLFDGE-----DIVEHWRIS
sp O06282 M.tuberculosis	-----MLLAIDVRNTHTVVGLLSGMKEHAKVVQQWRIR
WIT RRC02473 R.capsulatus	-----MLLCIDCGNTNTVFSVWDGT----DFAATWRIA
dbj BAA21476.1 D.vulgaris	-----MTQHFLFDIGNTNVKIGIAVET----AVLTSYVLP
sp Q9RX54 D.radiodurans	-----MPAFPELLAVDIGNTTTLGLADASG---ALHTHTWRIR
gb AAD35964.1 T.maritima	-----MYLLVDVGNTHTSVFSITEDG----KTRRRWRLLS
sp O83446 T.pallidum	-----MLLIDVGNSHVVFQIGGNGGRVVCVRELFRLLA
sp O51477 B.burgdorferi	-----MNKPLISELIIDIGNTSIAFALFDN----QVNLFIKMK
sp O67753 A.aeolicus	-----MRFLTVDVGNSSVDIALWEGK-----KVK
sp P74045 Synecocystis	-----METSKEPGCGGLALDNDKQKPWLGLMIGN----SRLHWAYC
sp O25533 H.pylori	-----MPARQSFDTLKN---LVLCIDIGN-----TR
sp Q45338 B.pertussis	-----MIILIDSGNSRLKVGWFDPDAP--QAAREPAPV

* :

FIG. 6B

B. subtilis|Coax|SEQIDNO_9
 WIT|RCA03301|C.acetobutylicum
 pir|T36391|S.coelicolor
 sp|O06282|M.tuberculosis
 WIT|RR02473|R.capsulatus
 dbj|BAA21476.1|D.vulgaris
 sp|Q9RX54|D.radiodurans
 gb|AAD35964.1|T.maritima
 sp|O83446|T.pallidum
 sp|O51477|B.burgdorferi
 sp|O67753|A.aeolicus
 sp|P74045|Synechocystis
 sp|O25533|H.pylori
 sp|Q45338|B.pertussis

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 WIT|RR02473|R.capsulatus
 dbj|BAA21476.1|D.vulgaris
 sp|Q9RX54|D.radiodurans
 gb|AAD35964.1|T.maritima
 sp|O83446|T.pallidum
 sp|O51477|B.burgdorferi
 sp|O67753|A.aeolicus
 sp|P74045|Synechocystis
 sp|O25533|H.pylori
 sp|Q45338|B.pertussis

TSRHKTEDEFGMILRSLFDHS----GLMFEQIDGIISSVVPIMFALER
 TDVLRSADEYGIQVMNLFQOD----KLDPTLVEGVIISSVVPNIMYSLEH
 TDSRRTADELAVLLQGLGMHPLLGDGLGDIGDIAICATVPSVLHELRE
 TESEVTADELALTIDGLIG-----EDSERLTGTAALSTVPSVLHEVRI
 TDHRRTADEYFVWLNTLMQLK-----GLQGRISEAIISSSTAPRVVFNLRV
 TDPGQTTDSIGRLRLLIEVLRHAG---LGPADVGCACVSSVVPVGNPLIRR
 TNREMLPDDLALQLHGLFTLA-----GAP-IPRAAVLSSVAPPVGENYAL
 TGVFTQTEDELFSHLHPLLG-----DAMREIKGIGVASVVPQTONTVIER
 PDARKTQDEYSLLIHALCERAG-----VGRASLRDAFISSVVPVLTKTIAAD
 TNMLRYDEVYSFFEENFDN-----VN---K-VFISSVVPILNETFKN
 DFLKLSHEEFLKEEFPKLK-----ALGISVKQSFSEKVRG
 SGNAPLQTWVTDYNPKSAQLP-----VLLGKVPMLLASVVPE
 IHFAQNYQLFSSAKEDLKR-----LGIQKEIFYISVNEE
 AFDNLDLDALGRWLATLPRRP-----Q-----RALGVNVAGLARGEAIA

MCTKYFHIEPQIVG-PG-MKTGLNICKYDNPKKEVGADRIVNAVAIHLYG-
 MIRKYFKINPLVVG-PG-IKTGINICKYDNPKKEVGADRIVNAVAHEIYK-
 VTRRYGDPVPAVLVEPG-VKTGVPILTDHPKEVGADRIINAVAARELYG-
 MLDQYWPSPVPHVLIIEPG-VRTGIPLLVDNPKKEVGADRIVNCIAAYDRFR-
 LCNRYFDCRPYVVGKPG-CELPVAPRVDPGTTVGPDRLLVNTVAGYDRHG-
 ACERYL--YRKLLEFAPGDIAIPLDNRAYERPAEVEVGADRLVAAYAARRLYP-
 ALKRHFMDAFAVSAEN--LPDVTVELDTPGSVGADRLCNLFGAEKYL-
 FSQYFHSPIWVKAKN--GCVKWNKPNPSEVGADRVANVAVFVKEYG-
 AVAQISGVQPVVFGPWAYEHLPVRIPEPVRAEIGTDLVANAVAAYVHFR-
 VIFSEFFKIKPLFIGFDLNYDLTFNPKSDKFLGSDVFANLVAAIENYS-
 KIPKIK-----FLKKEN---FPIQVDYKTPETLTGDRVALAYSAKKFFYG-
 QTEVWRVYQPKILTILKN---LPLVNLYP---SFGIDRALAGLGTGLTYG-
 NEKALLNCYPNAKNIAG---FFHLETDYVG---LGIDRQMACLA---VN---
 ATLRAGGCDIRWLRQAP-LAMGLRNGYRNPDLQGLADRWACMVGLARQPS

* *

FIG. 6C

B. subtilis|Coax|SEQIDNO_9
WIT|RCA03301|C.acetobutylicum
pir|T36391|S.coelicolor
sp|O06282|M.tuberculosis
WIT|RR02473|R.capsulatus
dbj|BAA21476.1|D.vulgaris
sp|Q9RX54|D.radiodurans
gb|AAD35964.1|T.maritima
sp|O83446|T.pallidum
sp|O51477|B.burgdorferi
sp|O67753|A.aeolicus
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WIT|RCA03301|C.acetobutylicum
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sp|O06282|M.tuberculosis
WIT|RR02473|R.capsulatus
dbj|BAA21476.1|D.vulgaris
sp|Q9RX54|D.radiodurans
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sp|O51477|B.burgdorferi
sp|O67753|A.aeolicus
sp|P74045|Synechocystis
sp|O25533|H.pylori
sp|Q45338|B.pertussis

NP--LIVDFGTATTCYIDENKQYMGGAIPGTTISTEALYSRAAKLPR
RS--LIIDFGTATTCFAVRENGDYLGGAICPGIKVSEALFEKAALPR
GP--AIVDFGTATTCDAVSARGEYIGGVIAPGIEISVEALGVKGAQLRK
KA--AIVDFGSSICVDVVSAGKEFLGGAIPGVQVSSDAAAARSAAALRR
GD--LIVDFGTATTCVAPDGAYIGGVIAPGVNLSLEALHMAAALPH
GPRSLVDFGTATTCVEG-GAYLGGLICPGVLSAGALSSRTAKLPR
GLDYAVVDFGTSTNFDVVGRRRFLGGILATGAQVSADALFARAALPR
KN--GIIDMGATTVDLVN-GSYEGGAILPGFFMVHSLFRGTAKLPL
SA--CVVDCGTALTFTAVDGTGLIQGVAIAPGLRTAVQSLHTGTALPL
FEN-VLVDLGTACTIFAVSRQDGLGGLINSGLINENSLDNAYLIK
KN--VVVISAGTALVIDLVE-GKFKGGFITLGLGKKILSDLAEGPIE
FP--CLVDDGGTALTITGFDQDKLVGGAILPGLGLQLATLGDRLAALPK
NG--VVVDAGSAITIDLIKE-GKHLGGCILPGLAQYIHAYKKSAKILEQ
VHPLLVSFGTATTLDTIGPDNVFPGLLPGPMMRGALAYGTAHLPL

: . * : : . * : * :
IEITRPN--IIGKNTVSAMQSGILFGYVGVQVEGIVKRMKWQAKDLK-
VELIKPAY--AICKNTISSIQSGIVYRLRQVKYLFKLENLPDGRRT
IEVARPRS--VIGKNTVEAMQSGIVYGFAGQVDGVNRMARELADD--P
VELARPRS--VVGKNTVECMQAGAVFGFAGLVDGLVGRIREDSVGSVD
VDVTKPQG--VIGTNTVACIQSGVYWGVIYGLVEGIVRQIRMERDRP--
ISLEVEEDS-PVIGRSTTSLNHGFIFFGAAMTEGVLA--
ITLQAPET--AIGKNTVHALQSGLVFGYAEVMDGLLRIRAEPLGE--
VEVKPADF--VVGKNTENIRLGVVNGSVYALEGIIIGRIKEVYGDLP--
VPLALPDS--VLGKDTTHAVQAGVVRGTLFVIRAMIAQCQKELGCR--
FPISTPNN--LLERTTSGSVNSGLFYQYKYLIEGVYDIKQMYKK--
FFPEEVEI--FLGRSTRECVLGGAAYRESTEFIKSTLKLWRKVFKRK--
LEMDQLTELPRWDTPSAIFSGVYVGLGALQSYLDWQKLFPGA--
PFKALDSL--EVLPKSTRDAVNYGMVLSVIACIQHLAK--NQK-----
ADGLIVADY-----PIDTHQAIASGIAAAQAGAIVRQWLGRQRYGAP--

FIG. 6D

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WIT|RCA03301|C. acetobutylicum
pir|T36391|S. coelicolor
sp|O06282|M. tuberculosis
WIT|RR02473|R. capsulatus
dbj|BAA21476.1|D. vulgaris
sp|Q9RX54|D. radiodurans
gb|AAD35964.1|T. maritima
sp|O83446|T. pallidum
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WIT|RR02473|R. capsulatus
dbj|BAA21476.1|D. vulgaris
sp|Q9RX54|D. radiodurans
gb|AAD35964.1|T. maritima
sp|O83446|T. pallidum
sp|O51477|B. burgdorferi
sp|O67753|A. aeolicus
sp|P74045|Synechocystis
sp|O25533|H. pylori
sp|Q45338|B. pertussis

---VIATGG---LAPLIANES---DCIDIVDPFLTKGLELI
RTSLVLTATGG---LAKLIN-----
DDVTVIATGG---LAPMVLGES---SVIDEHFPLTMGLRLV
HDVAIVATGH---TAPLLLPEL---HTVDHYDQHLTLQGLRLV
--MKVIATGG---LASLFDLGF---DLFDKVEDDLTMHGLRLI

--AVAVATGG---FSRTVQGIC---QEIDYYDETTLRLGLVEL
---VVLTTGG---QSKIVK-DM---IKHEIFDEDLTIKGVYHF
--CAAVITGG---LSRLFS-SE---VDFPPIDAQLTSLGLAHI
--FNLIITGG---NADLIISLI---EIEFIFNIHLTVEGVRIL
--FKVITGG---EGKYFS-----KFGIYDPLLVHRGMRNL
---AMVITGG---DGKILHGFLKEHSPNLSVWDDNLIIFLGMAAI
----IYLCGG---DAKYLSAFL-----PHSVCKERLVFDGMEIA
---EIVVAGGWPEVRQEAERLLAVTGAAFGATPQPTYLDSPVLDGLAAL

YERNRVGSV-----

YERNVSRM-----
FERNLEVQRCRLKTAR----
FDYKGLGA-----

WASRSEVR-----
CFGD-----
ARLVPTSLPPATVSGSSGN
GNSIDFKFVN-----
LYLYHRI-----
HHGDRPIC-----
LKAGILECK-----
AAQAGAPTA-----



FIG. 7

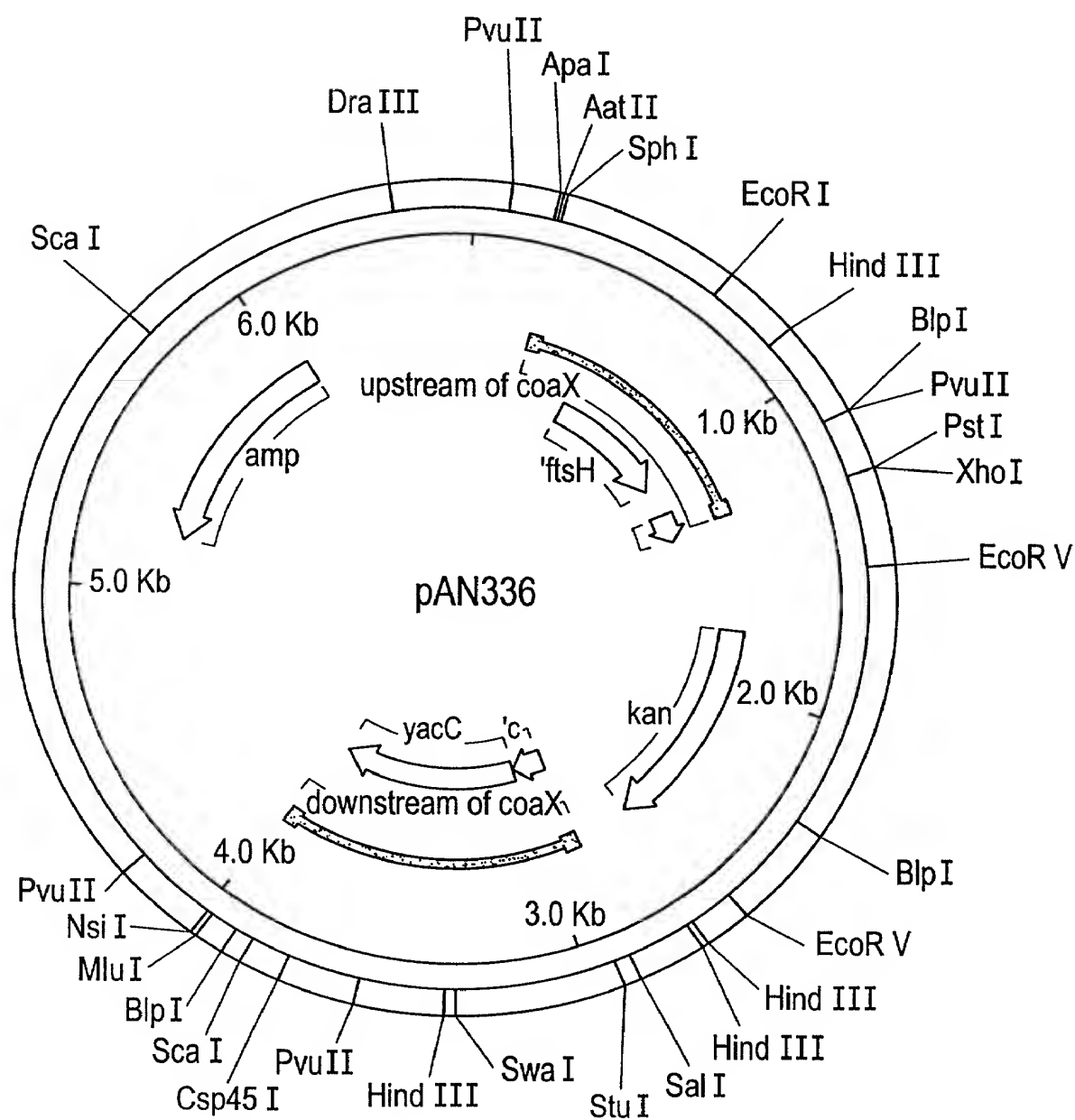


FIG. 8

Construction of pOTP72

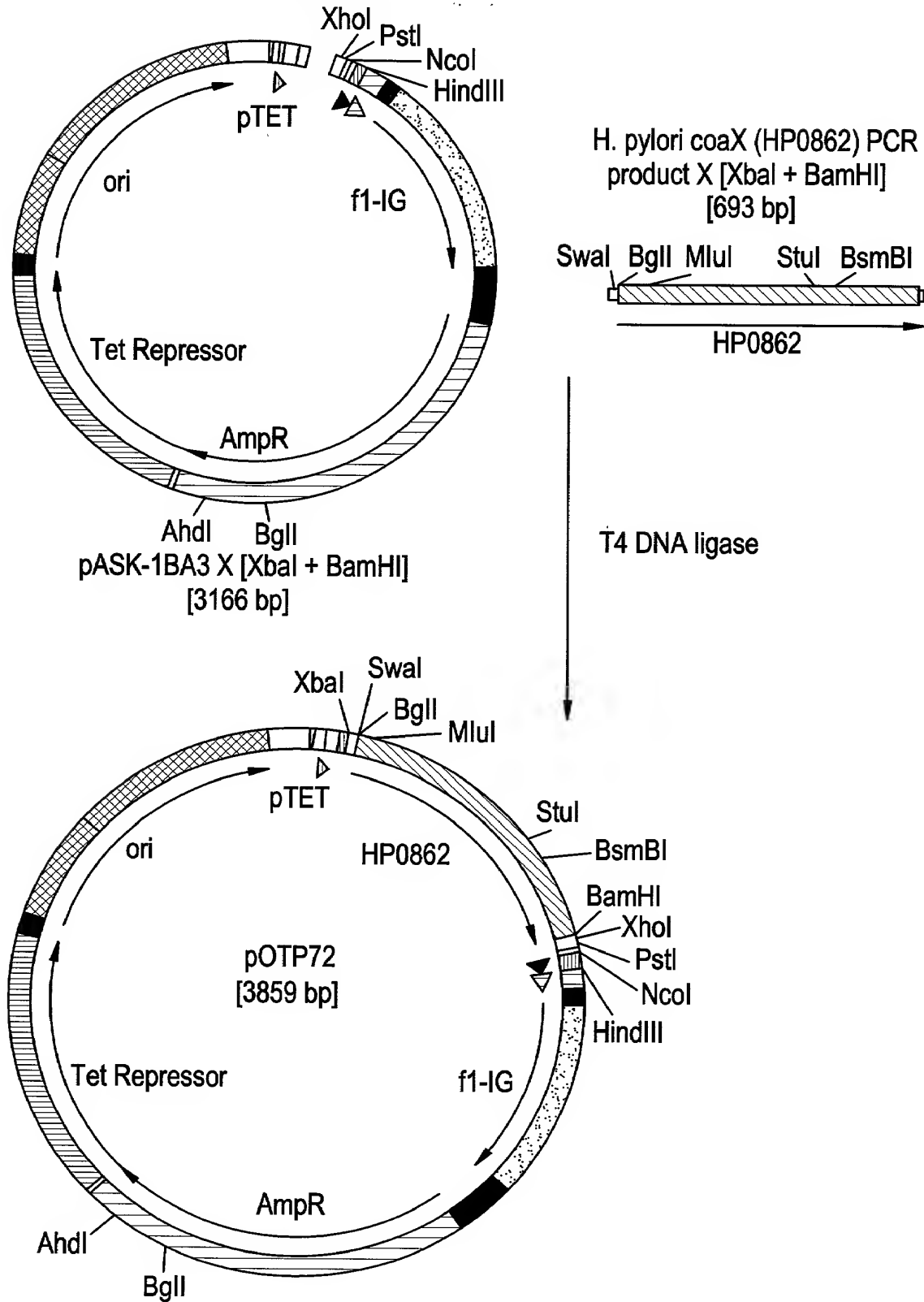


FIG. 9

Construction of pOTP73

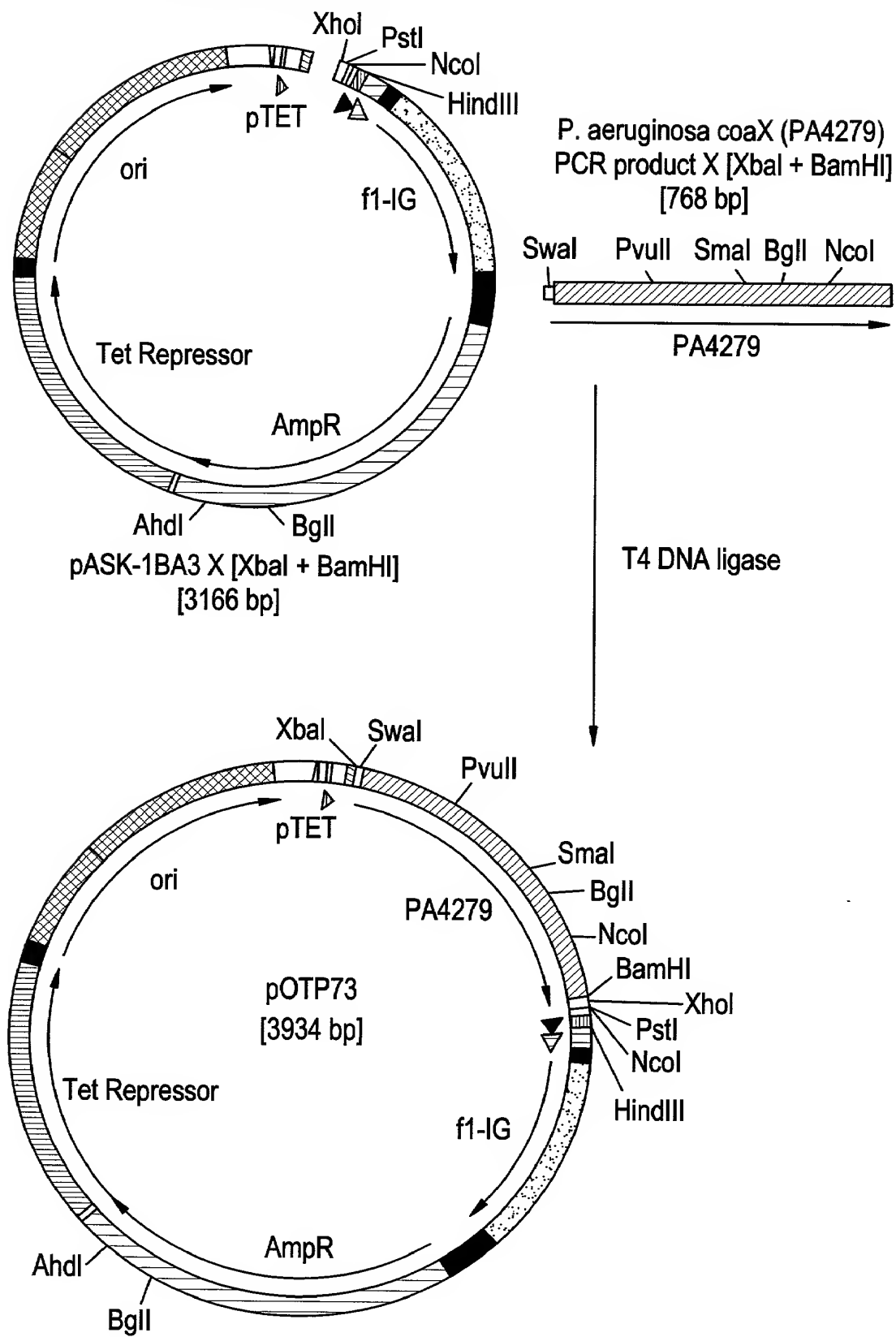


FIG. 10

Construction of pOTP71

